

Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)

Federal-State Joint Board on)

Universal Service)

CC Docket No. 96-45

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COMMENTS OF THE ALLIANCE FOR PUBLIC TECHNOLOGY

EXECUTIVE SUMMARY

The Alliance for Public Technology (APT), a non-profit association of consumer and public interest groups, in these comments, urges the Joint Board to remedy a serious defect in the Report of the Joint Board in failing to address universal service provisions for advanced services, the deployment of advanced telecommunications networks and interconnection as integrated parts to achieve the goals of the Telecommunications Act of 1996 ("Telecom Act", "The Act"). 47 U.S.C. § 254, 706, 251. In this decision, the Joint Board acted in contravention to the goal of the Act to advance the preservation and advancement of universal service to all Americans.

In Section I we illustrate that the Joint Board erred in excluding Section 706 from its consideration and that the FCC must refrain from making the same error for the following reasons:

- The Telecom Act does define the bedrock advanced telecom goal -- universal deployment and access to switched, two-way, broadband capabilities;
- The Act requires the Commission (and states) to promote that goal in all regulatory proceedings so that it can be achieved at the earliest practicable time;

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- The Commission will be acting inconsistently with that requirement if it continues to regard Section 706 as a stand-alone matter to which it will eventually turn to at some later date.
- Moreover, in the Interconnection decision, the Commission placed a very large barrier to ILEC investment in advanced telecom capabilities. That serious error must be promptly remedied.

In Section II, we point out the need for action by both the FCC and the states to promote a migratory path to move the nation from basic to advanced telecommunications services. Our comments point out:

- Explicit and equitable funding of subsidies is a precondition for workable competition;
- Market failures are a familiar and inevitable concomitant to our commitment to and reliance on market forces which can be seen in the current mal-distribution of health care, in the lack of affordable housing and in other areas in our economy.
- Reliance on market forces and on institutional user discounts will not create the necessary migratory path to move the nation towards the universal availability of advanced telecommunications services without the regulatory action provided for in Section 706 and attention to the communities of interest at risk of being bypassed or underserved by the market.
- The FCC must act now to integrate Sections 706 and 254 of the Act and begin too stimulate the development of migratory paths through the following actions:
 1. Allocate some percentage of the intrastate portion of the universal service fund to promote the development of state pilot projects to establish community structures to aggregate demand for advanced telecommunications services;
 2. Establish eligibility standards for institutional users for the special discounts which require their participation in coalitions or in strategic planning groups which are looking to aggregate community demand for advanced telecommunications services and or are themselves developing strategies towards use of telecommunications services and facilities to provide public education, information and health care services to residences and public access points;

3. Modify the Recommended Decision's refusal to reconsider its universal service definitions before 2001 and to require any reports other than those already required by FCC. An essential element of the migratory path to advanced telecom services is information on how the market place is achieving the desired build out towards providing advanced services to all Americans;
4. Order annual reviews of the use of services entitled to universal service support by community, special discount users and geographic regions that do not receive universal service support;
5. Order carriers, public utilities, state highway authorities and state advanced network managers to file annual reports on their network modernization plans, as well as the geographic location, scope and capabilities of their networks;
6. Require states to start mapping, in terms of specific capabilities, how the build out of modernized networks is progressing, as well as to give special attention to problems of social and economic redlining as they evolve.
7. Establish caps on the universal service funds for special discount users going to each state to ensure that schools, libraries and health care providers do not use up the funds and crowd out those public institutions that will require more time to develop their telecommunications plans and find universal service support.

In Section III of its comments, the Alliance outlines the range of advanced health care services that should be included in the services entitled to universal service support. The Alliance points out that with the shift in the focus of health care today away from acute interventions in institutional settings to the management of chronic illness and convalescence, health care is being delivered by a broad range of health care providers in a wide range of local community facilities including home-based care. APT points out that the new telecommunication technologies offer cost effective ways of meeting the needs of health care providers by delivering these services to patients in their homes.

It also enumerates the following points that the FCC must take into consideration in determining how to support upgrades to the public network:

- The type of network configurations being used to ensure their reach to the broadest segment of health care providers;
- The accessibility to communities of high speed advanced networks developed by public utilities, state highway, health and education departments and other entities which may cost very little to connect to technologies, deployment and equipment;
- The short life of network deployment cost estimates due to the rapidly changing and declining costs of networks as a result of evolving carrier network configurations and rising usage;
- The lower cost of using public network facilities over private, leased or dedicated lines which can reduce the amount of universal service support required by a health care provider;
- And development of eligibility requirements for universal service support which relate to use of the least expensive and cost effective way of providing access to telecommunications services.

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COMMENTS

ALLIANCE FOR PUBLIC TECHNOLOGY

These comments are submitted in response to the Federal Communications Commission's ("FCC") November 18, 1996 Request for Comments on the Joint Board's Recommended Decision dated November 7, 1996 by the Alliance For Public Technology ("APT"). APT is a grassroots membership organization devoted to promoting universal access to advanced telecommunications services by all consumers.

These comments address themselves first to what we see as the FCC's responsibility in implementing the universal service goals and provisions of the Telecommunications Act of 1996 (herein referred to as the "Act") second, to the need to modify the Joint Board recommendations to promote advanced telecommunications; and third, to the FCC's request for comments on the scope of health care services to be included in the list of additional services and to considerations of supporting upgrades to public switched or backbone networks.

I. The FCC's 1996 Telecom Statutory Responsibilities

We believe that the Commission must act now, in this and in all other proceedings, to treat the provisions of the Act relating to universal service for advanced telecommunications services, the deployment of timely advanced telecom capabilities and interconnection as integrated parts of the core Congressional intent in passing the Act - the preservation and advancement of universal service to all Americans.

We are deeply troubled that the Joint Board decision seems to treat each of the regulatory proceedings mandated in Sections 251, 254 and 706 of the Act as if they are isolated events, separate and apart from and unrelated to each other. In fact, the Act's provisions respecting universal service mechanisms for advanced telecommunications services, advanced telecommunications capabilities and interconnection are really "one ball of wax" which must be considered together as part of a seamless whole to bring the nation's telecommunications policy into line with the new advancements in telecommunications and information services technology.

A. The FCC's Universal Service Responsibilities

Section 254(b) sets out the principles on which the FCC and Joint Board shall base policies "for the preservation and advancement of universal service". 47 U.S.C. § 254. The thrust of each of these principles is access to "advanced telecommunications and information services" which is

specifically referred to in Principle Numbers 2, 3, 5 and 6 taking into account advances in telecommunications and inferred in the other enumerated principles. Id. Indeed Section 254(b)(2) is explicit on this score: access to advanced telecommunication and information services should be provided in all regions of the nation. Id.

Section 254(c) makes it clear that Congress regarded universal service as a concept of an "evolving level of telecommunications services" taking into account "advances in telecommunications and information technologies and services." Id. There will undoubtedly be various facets and stages of advanced telecom services. But the Recommended Decision is mistaken in its view that nothing can now be usefully accomplished by focusing on the definition of universal services.¹ It is important-- indeed imperative-- that the Commission focus on the end game- the bedrock definition of advanced telecom services (without regard to what "bells and whistles" may also be involved). That definition is set out in Section 706 (c) as switched, broadband, two way telecommunication to all Americans. 47 U.S.C. § 706. The principles in Section 254(b), especially (b)(2) are set forth to direct the Commission and the states to act now in order that in a timely fashion, the nation can move ahead into the advanced broadband capabilities delineated in Section 706. Stated differently, the evolving concept of universal service is one from narrow band to broadband services.²

¹ We consider in B, infra, whether any facet of advanced telecom services comes today with the universal service concept.

² Section 254(h) continues the Act's focus and concern with the need to make available to all Americans advanced telecom and information services in the specific areas of education, libraries and health care.

Thus Section 706 concerns itself with the obvious fact that unless our nation's telecommunications networks are capable of carrying advanced services, universal service cannot become a reality "for all Americans." Section 706 mandates the Commission "to encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans" which, as noted, it defines as "high speed switched broadband telecommunications capability that enables users to originate and receive high quality voice, data, graphics and video communications using any technology." Id. The use of the phrase "for the purposes of this subsection" is in no way limiting. The section states specifically that it applies to all "regulating methods" of the Commission which includes proceedings such as this one on universal service and the interconnection rulemaking.

The Congress clearly understood the need for advanced telecom capabilities in order to ensure that all American had access to advanced telecommunications services. These two concerns of Congress embraced in Sections 254 and 706 cannot be read in isolation from each other since they are two sides of the same coin. The existing local telephone system currently subject to universal service is ubiquitous but narrow band because its last distributional segment to the home (the local loop from the central office switch to the home) is currently based on the non compressed twisted pair (copper wire). The computer and related information industries are growing at an extraordinary speed with the number of transistors on a chip doubling every eighteen months.

Congress clearly recognized this disconnection between the narrow band last mile and the evolving telecommunications high speed and video services with its references to the evolving level of services. This evolution is proceeding at a rapid rate. The long distance networks, based on fiber optic cable or satellite capacity, can handle these high volumes. But when these transmissions come to localities and involve residences and small businesses, the information superhighway becomes a "dirt road." It will be impossible to ensure to all Americans access to advanced telecommunications and information services if the nation is left with the problem of the "dirt road" when the information superhighway hits the local area.

B. The Commission has failed to act now to promote the advanced broadband telecom capabilities, as directed by Sections 254 and 706.

The Recommended Decision does not now define any aspect of advanced telecom services as coming within the universal service requirement. That determination can be disputed. While no advanced telecom service today meets all four of the criteria set out in Section 254(c)(1) (and especially the criterion of the service having been taken, pursuant to market response, by a substantial majority of subscribers), the decision does note that not all four of the criteria must be met to qualify some services for inclusion under the universal service requirement. Certainly, some advanced services like data services for education (Internet access) or health care in residences which can be delivered through existing or slightly upgraded copper wire networks, would

markedly serve the public interest (See Section III infra). Indeed without these services, the education and health care goals of the nation cannot be said to have been adequately met.

But assuming, as we apparently must, that the Commission is not ready to take action along the above lines, it is still duty bound to act now, through all of its policy decisions, to promote the timely achievement of the bedrock advanced telecom service, switched broadband. The Joint Board recommends that the Commission do just the opposite; The Board has acted as if the mandate of Section 706 and 254(b)(2) need not be implemented in this proceeding, and indeed need not be considered at all; rather the Board seems to think that the FCC can get around to considering what to do about advanced broadband telecom capabilities 26 months from now by then initiating the Section 706 proceeding mandated by the Act.

This is a folly and the FCC must not accept the Board's recommendations on this score. Each year that is wasted in propelling the nation towards the deployment of advanced telecom networks is time lost forever. The requirements of Sections 706 and 254(b)(2) are applicable now to all FCC (and state) "regulating methods," and must, therefore, be taken into account in this and all other proceedings.

In this proceeding, for example, we set out in Section II our recommendations about community based applications allied to the universal service efforts directed to public institutions (eg. schools, libraries and health care centers). We strongly believe that such efforts can make a needed initial

contribution to building public awareness, acceptance and use of advanced telecom and information services, and thus to their widespread public employment.

There are undoubtedly stratagems that the Commission, state boards and the public can advance to meet the bedrock objectives of Sections 706 and 254(b)(2), if there is the needed focus on this vital subject. And, of course, the two sections must be taken into account when the Commission and the states deal with matters like price cap or depreciation regulation.

C. Incredibly, in the Interconnection decision, the FCC not only didn't take into account Sections 706 and 254(b)(2), but acted so as to markedly discourage investment in advanced telecom capabilities. That action must be corrected now in this proceeding or any other forum promptly initiated.

Our concern that the FCC is not interpreting the Telecom Act as a seamless whole is heightened by the way in which it treated the requirements of Section 251 interconnection regulations consistent with the mandate of Sections 706 and (254(b)(2).

The Commission did raise the issue of the application of Section 706 in the Interconnection proceeding (See Part XIII, First Report). We urged that "Section 706 should underlie all of the Commission's proceedings," thus including interconnection. Par 1268. Thus, the Commission, in that most important docket, continued its pattern of treating Sections 706 and 254(b)(2) as

seemingly stand alone provisions with no need to take their mandate into account in forging the interconnection rules.

The result was predictable and seriously flawed. In reaching its interconnection decision, the Commission appeared to be solely concerned with achieving a quick entry by the new competitors in local telecommunications. The Commission wholly ignored its equally important responsibilities under Sections 254 and 706 of the Act to promote both universal access to advanced telecommunications services and the timely deployment of networks capable of delivering advanced telecommunications services. Indeed, by mandating the TELRIC formula in establishing interconnection rates for unbundled elements (or "shadow network" of such elements), the FCC has imposed rather than removed a serious barrier in the way of advanced network deployment. Why should an ILEC make the large risky investment in switched broadband facilities if they must make the facilities available to competitors on the unbundled TELRIC basis? Why invest in some advanced telecommunications endeavor if the investment, if it turns out to be inefficient or a failure, will be eliminated from the prices charged competitors for the advanced network-- if R&D costs cannot be recovered?

The FCC should have integrated its interconnection regulatory action with the universal service and advanced telecommunications capabilities goals of the Telecom Act. It could have simply excluded the advanced network elements when built and implemented from the unbundling TELRIC regime. It could have followed the course advocated by Professor Alfred Kahn calling for

the advanced communications networks, whether telecom or cable, to go forward on an unregulated basis with the shareholder taking all the risks and getting all the benefits (and with rate payers protected as to basic service in view of price caps). There are other courses.³ The choice was the FCC's. What is not permissible under the Act was the Commission's refusal to give life to Sections 254 and 706 in all of its regulatory actions, including the important interconnection decision. That error must be promptly remedied by action either in this proceeding since it impacts the achievement of the Act's universal service goals (by making clear that such proposed remedial action is the a part of the proceeding), or by a notice speedily issued in a 706 proceeding or by a further notice in Docket No.96-95). The form is not important but some form of quick substantive action is most vitally needed.

To summarize the points:

- the Telecom Act does define the bedrock advanced telecom goal-- switched, two way, broadband capabilities;
- The Act does require the Commission (and states) to promote that goal today in all regulatory proceedings or methods so that it can be timely achieved;

³ See APT's suggestions in its earlier universal service filings, Dkt 96-95.

- The Commission will be acting inconsistently with that requirement if it continues to regard Section 706 as some stand-alone matter to which it can eventually turn;
- Moreover, in the Interconnection decision, the Commission placed a very large barrier to ILEC investment in advanced telecom capabilities. That serious error must be promptly remedied.

II. The Joint Board's Recommendation

The Joint Board's Limited Perception of How Universal Service is to Evolve in a Competitive Environment Requires the FCC to Adopt an Explicit Federal/State strategy for Integrating the Universal Service Commitments of Sections 706 and 254

A. The Joint Board's Recommendations Create Barriers to the Evolution of Basic to Advanced Telecom Services

The Joint Board stated it was eliminating the public policy commitment in Section 706 to "reasonable and timely" deployment of "advanced telecommunications capability to all Americans" from its consideration of universal service in the context of the Section 254 rule making proceeding." Federal-State Joint Board, Universal Service, CC Docket 96-

45, FCC (December 16, 1996) at paras. 614 & 619. APT believes this is in direct conflict with the Act's overarching commitment to an evolving concept of universal service in a competitive environment.

This approach by the Joint Board indicates a failure to comprehend how market-compatible entitlements to basic telephone services and targeted discounts for high-priority, community-based deployment of telecommunications technologies are linked inextricably to building out networks for advanced universal service.

The overall thrust of the Joint Board recommendations on universal service is to opt for developing a new (market compatible) system of universal service entitlements for basic telephone service which will be funded by explicit rather than implicit universal service support subsidies.

APT fully agrees that there must be a solid foundation of basic services for the evolution of advanced universal service as competitive forces are turned loose to develop and deploy advanced telecommunications technologies. Further it is well understood and accepted that explicit and equitable funding of subsidies is a precondition to workable competition--a guiding principle in the law and the recommendations of the Joint Board. However, the Joint Board appears to ignore the more subtle ways in which the process of making subsidies explicit also converts the public utility concept of "universal service"

into an internally funded, "virtual" entitlement program which may become highly vulnerable to political pressure in the future as an unacceptable safety net program for a narrow segment of the population. It is in this context that the severing of Section 706's advanced universal service commitments to all Americans from the Section 254 special discount proceeding has major consequences. These consequences must be understood and confronted by the FCC for remedial action in its consideration of the Joint Board's recommendations.

What the Joint Board fails to do is to establish a clear migratory path for network evolution under Section 706 which would prevent the new universal service support mechanisms for basic services from becoming another politically charged social welfare safety net that would be difficult to upgrade under the explicit funding requirements of the marketplace. Also, it assures only minimal voice grade linkages to advanced technologies for vast segments of the population at risk of being by passed or marginalized in a competitive environment.

The Joint Board appears confident in its recommendations that these undesired outcomes will be prevented. The Board's faith rests on its aggressive program of discounts to schools and libraries embracing advanced technologies and services, and in its considerably less aggressive development of discounts mandated by Congress for health care. (See our Health Care comments below in Section III). It sees these discounts as a

way to carry out Congress' intent that access to advanced technologies by schools and libraries "will assure that no one is barred from benefiting from the power of the Information Age", (Congressional quote in Paragraph 442 of Joint Board's recommendations).

We applaud the Board's determination to push discounts for qualified schools and libraries into the advanced technologies and services, providing for discounts for internal wiring, Internet access and discounts up to 90 percent for schools and libraries serving disadvantaged populations.

APT, however, believes that it is wishful thinking to expect that a system of liberal discounts to provide students and rural health care providers with access to voice services will prevent "at risk" populations from being marginalized in the development of competitive markets for telecommunications. Desirable as these discounts are, the Joint Board failed to confront the question of how the use of technology in the schools and libraries is going to impact the great disparities between the information rich and information poor and how it will make up for the lack of access to communications services by families in their home and work place. Addressing what it takes to make market forces work for "all Americans" is the challenge of Section 706's commitment. It is a challenge that needs to be met now by the FCC as it acts on the Joint Board recommendations since special discounts by themselves will not do it.

At this juncture of rule making, balancing the potential for market failures with the many benefits of unleashing market forces requires a sharp focus on the communities of interest which are "at risk" of being by-passed or underserved. Yet the Joint Board does not recognize or deal with the possibility of market failure.

The targeted discounts, while important drivers cannot be expected to overcome the implicit "market failures", which historically have been a concomitant to the nation's commitment to and reliance on market forces for the production and distribution of goods and services. These market failures are abundantly clear in the mal-distribution of health care services, in the lack of affordable and decent housing for all households and in many other aspects of our increasingly polarized society.

Similar market failures in the distribution of advanced telecommunications are also inevitable. They need to be anticipated, identified, prevented, or mitigated and overcome if the advanced universal service objectives of Sections 254 and 706 are to be realized, as intended by Congress.

The Joint Board's decision to isolate Section 706 for later consideration violates Congressional recognition that network deployment is an integral part of reaching the

Act's goal of ensuring access to advanced telecommunications services for all Americans and will drive the nation in the direction of an information rich/poor society.

2. FCC Must Modify the Joint Board Recommendations In Order to Establish a Migratory Path for Universal Service Supports from Basic Services to Advanced Telecommunications Services For All Americans.

It is essential that the FCC in implementing the new Telecom Act act now to optimize, pro-actively, the capacity of advanced communications systems to build "community" out of diversity and to help mitigate and reverse the polarization of society that is ripping America apart.

In this and other proceedings, including the interconnection proceeding, APT has made recommendations to breathe some life into the promise of section 706. In a competitive environment, technology neutral investment incentives to build out high capacity network for ubiquitous deployment of advanced telecommunications technologies will be the determinants of what is to become of the public utility concept of "universal service". Much can be done in this respect by building universal service-oriented investment incentives into the Joint Boards recommendations, and by doing it in this rulemaking proceeding.

APT has emphasized in its FCC filings that community-based technology applications should be the central focus of investment incentives to competitive providers. APT has argued that communities must aggregate their demands for advanced service applications so that the market place can understand the potential market for advanced network capabilities.

We view deferral of implementation of Section 706 to the 30-month Notice of Inquiry proceeding to be a non-response to the proactive policy recommendations advanced by APT. We are particularly concerned that if the Joint Board's recommendations are not strengthened to specifically address the vulnerability of "at risk" communities --be they rural or urban-- to the inevitability of market failures, the essential foundation of basic services and discounts for high-priority, community-based applications of telecommunications technology will remain a largely underdeveloped building block.

There is danger that chaos will reign at the state and community levels if the FCC takes the position that the complexity of integrating implementation of section 706 with section 254 requires a gestation period of a couple of years in order for the FCC to determine what federal policies are needed to carry out the 706 commitment. It is the very complexity of making market forces work for everyone that is stirring state action.

APT believes that the FCC must focus on community-driven demand aggregation for state experimentation in order to impress upon state regulators that the advanced universal service commitment cannot be left to the play of market forces alone. Leaders of "at risk" communities who know what market failures are all about are demanding that they become community partners in shaping advanced telecommunication networks. Market development and simultaneous community building in the information age is necessarily a joint, dynamic, iterative, cumulative learning process which draws on both technology providers and users.

Bridging sections 706 and 254 requires an explicit recognition of the responsibilities which fall upon the states, with federal backing, in developing and deploying advanced technologies to reach the full spectrum of society.

States must be encouraged to experiment with market-oriented policies. An FCC mandate to the states at this point must be compelling enough to stir state action. Such a mandate to the states regarding section 706 implementation should include the responsibility to assure the full participation of "at risk" communities in the process of determining how discount subsidies are to be utilized by their community-based institutions.

At a minimum, the states should be encouraged to experiment with designing migratory paths to advanced services that can be reviewed within the 30 month time- frame for

initiating an evaluation of how well market forces are responding to the competitive framework embodied in the 1996 Act.

We believe that the FCC has no alternative but to act now to establish such a migratory path to advanced telecom services. Specifically, we suggest that FCC take the following steps now to promote these migratory paths:

- Allocate some percentage of the intrastate portion of the universal service fund to finance state experiments to implement community based applications to aggregate demand for advanced telecommunications services.⁴

- Establish eligibility standards for institutional public users of the special discounts which require such users to participate in coalitions or in strategic planning groups which are looking to aggregate community demands for advanced telecommunications services or are themselves developing strategies to use telecommunications services and facilities to provide public education, information or health care services to residences and public access points.

⁴ We have elaborated what some of these equitable financial incentives might consist of in our previous universal service filings, DKT 96-95 pp.

We are also concerned that the Joint Board deferred any reconsideration of its universal service definitions until 2001 and refused to require any reports other than those already required by the FCC. An essential element in the migratory path to advanced telecommunication services is information on how the market place is achieving the hoped for build out to providing advanced services to all Americans.

The FCC must modify the Joint Board's recommended decision in these respects and take the following steps:

- Require carriers, public utilities, state highway authorities and state advanced network managers to file annual reports on their network modernization plans, and on the geographic location, scope and capabilities of their networks;

- Require states to start mapping, in terms of specific capabilities, how the build out of modernized networks is progressing and to give special attention to problems of social and economic redlining as they evolve;

- Order annual reviews of the use of services entitled to universal service support by community and special discount users and of the types of and geographic areas in which advanced service applications not now currently included as entitled to receive universal service support are being offered. This would enable the FCC to evaluate how

subsidies to schools, libraries, and health care institutions actually play out in expanding community access to advanced technologies.

III. Health Care Recommendations and FCC Questions

The FCC has asked for comments on several aspects of the Joint Board's Health Care Recommendations. APT is addressing only two of the FCC's requests for comments: (1) the scope of health care services and telecommunications needs of rural health care providers; and (2) the cost considerations involved in upgrading the public switched network to respond to these needs.

1. Scope of Services and Needs of Providers

In order to understand the telecommunications needs of rural health care providers, it is essential to understand first, the major demands being made on our health care system today and second, the potential of telecommunications to meet these demands and the scope of services which it can provide in rural areas.

(a) The Needs of Our Health Care System Today:

Health care today is focusing increasingly on preventive care, facilitating self care and managing convalescence and chronic illness. It is no longer centered primarily in hospitals. It is delivered in out patient facilities, community health clinics, nursing homes, assisted living facilities, senior centers and increasingly in the home by a variety of health care providers, including physicians, physicians assistants, nurses, nurse practitioners and visiting nurses, therapists, nutritionists, home health aides and social workers.

Health care today is essentially a team effort. But team members are no longer congregated in the hospital where their coordination of the patient's care was a relatively simple function of reading the patient's record at the bottom of their bed, daily staff meetings and face to face encounters in the hall. Today, team members treating a patient even if they are in the same city or rural area are just as remote from each other as the rural primary care physician is from the big city specialist or lab. A major driver of managed care is the need to coordinate what has in the past been highly fragmented care provided by different providers who have been unrelated to each other.

Telemedicine is becoming one of the critical means of responding to the new health care as it is being delivered today. Telemedicine is not simply a way of transcending distances between primary care physicians and remotely located specialists. Rather, it is an essential element to serve the needs of rural communities and to facilitate the coordination among the health care team members and facilities located in the same